P. R. Fraissinet, E. R. Hoebeke (Cornell) and R. T. Schuh (American Museum of Natural History) reviewed an early draft of this note. E. R. Hoebeke also made species determinations of Canopidae. Z. H. Falin and Q. D. Wheeler (Cornell) loaned canopids that they had collected. Q. D. Wheeler provided the opportunity to work in Peru in 1987. The research was also funded by Cornell University Graduate School travel grants, Grace Griswold Fund grants, a Hal Moore Competition award, and by NSF Grant No. BSR-87-17401 and Hatch Project No. NY(C)-139426 (both to Q. D. Wheeler).

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MYCOPHAGOUS MIRIDAE? ASSOCIATIONS OF CYLAPINAE (HETEROPTERA) WITH PYRENOMYCETE FUNGI (EUASCOMYCETES: XYLARIACEAE)

Mycophagy in the mirid subfamily Cylapinae has been inferred, but never demonstrated. *Cylapus tenuicornis* (Say), a North American species of this predominantly tropical group, is widely distributed yet seldom collected. It has been reported from the bark of dead trees and from fungi covering dead wood (Heidemann, 1891; Uhler, 1891; Banks, 1893; Knight and McAtee, 1929). On the other hand, Leston (1961) and Schuh (1974), among others, have suggested that cylapines are predators.

There is little doubt that most Cylapinae live under bark, on rotten logs in association with fungi, and that at least some species frequent pyrenomycete fungi. Schuh (1976) reported observing larger numbers of cylapines under bark than would be expected of a predatory species, while Kelton (1985) reported nymphs and adults of *Fulvius imbecilis* (Say) from a nearly dry pile of poplar logs in Manitoba "feeding on dipterous and small coleopterous larvae and on the other soft-bodied arthropods found in damp areas under the bark or in fungi." And Herring (1976) discussed associations with the polypore fungi *Polyporus caperatus* and *Coriolopsis corcata* inhabited by ciid beetles, whose larvae he supposed them to feed upon. A more complete review of the evidence for predation among cylapines will be given elsewhere (A.G.W., Jr., in prep.).

Predatory habits might be inferred from several lines of circumstantial evidence that are, even in combination, inconclusive. The extraordinary speed and agility of

cylapines could be taken as the mark of a predator, except many potential prey items (such as other fungus-feeding insects) are often sedentary. Many insects, including certain Lepidoptera (Rawlins, 1984) and members of 28 families of Coleoptera ("MYCOL" data base, Cornell University, unpubl. data), are associated with pyrenomycete fungi, suggesting a broad array of potential prey species. In the laboratory, adults and nymphs of *Cylapus tenuicornis* probed selectively into crevices of fungus-covered wood; the bugs' stylets usually penetrated the fungus and probed bark crevices beneath (A. G. Wheeler and T. Henry, pers. obs.). Finally, the fact that mycophagy has not been observed in phylogenetically related mirids makes the possibility of mycophagy surprising.

Schuh (1976), reconsidering his earlier opinion, stated that existing evidence leans toward mycophagy in cylapines. In support of his hypothesis Schuh cited China and Carvalho (1951), who reported a species of *Xenocylapus* from a fallen log in South America, and Carvalho (1954), who reported two species of *Cylapocoris* spp. from an Auricularia fungus "growing on rotten trees in the forest. Since nymphs were taken it is probable that the species feed and complete their life cycle on this fungus" (Carvalho, 1954). Further, Schuh (1976) observed South American *Cylapus* spp., *Valdasus* sp., and *Xenocylapus* sp. from pyrenomycete-covered logs, and collected *Cylapocoris* sp. from "soft mushroom-like fungi on rotting logs" in Perú. Carvalho and Lorenzato (1978), in reviewing the Cylapinae of Papua New Guinea, observed that "many species feed on fungi."

In the course of collecting insects associated with fungi in Perú and the United States, individuals of two species of Cylapinae were collected from pyrenomycetes, dissected, and observed to have present in their guts ingested materials from host fungi. Thus, the first direct evidence for fungus feeding, in at least one temperate and one tropical species of cylapine, is reported below.

Some common pyrenomycete fungi produce darkly colored, hard and crusty fruiting bodies on decaying wood that can make sections of logs appear from a distance to be burnt. Cylapines may be found resting or running rapidly on the surface of such fungi. They are not infrequently observed, but we have collected relatively few cylapines. This is due in part to the remarkable speed and agility of both immature and mature forms, which makes their capture by hand challenging. Records below are for the two series from which specimens were dissected and found to have fungus material in their guts. Two museum specimens of *Cylapus tenuicornis* were dissected that did not contain any identifiable inclusions, fungal or otherwise. Specimens of two lots of North American *Fulvius* spp. also were dissected and found to contain no recognizable fungus parts.

Cylapus tenuicornis

UNITED STATES: New York, Tompkins County, Trumansburg, Henry Smith Woods, September 4, 1992 (Katherine A. Wheeler and Q. D. Wheeler collectors), Cornell University Insect Collection. One slide-mounted gut was found packed with large numbers of black ascospores. These spores, along with a voucher host specimen, were determined by Drs. Amy Rossman and Gary Samuels to be *Hypoxylon fragiforme* (Pers.: Fr.) Kickx., a common temperate zone species of the Xylariaceae, Euascomycetes, a pyrenomycete. A second dissection revealed a significant, but less densely packed, volume of identical spores.

Cylapus sp.

PERÚ: Madre de Dios, Rio Tambopata Reserve, ex Pyrenomycetes, Q. Wheeler 87077, 11 Jan. 1987, J. V. McHugh and Q. D. Wheeler collectors, Cornell University Insect Collection and American Museum of Natural History. Although no xylariaceous spores were present in the gut of this South American *Cylapus,* there were large numbers of ovoidal structures about 5 microns long that could be conidial stages of a Xylariaceae (Dr. Gary Samuels, pers. comm.). A few hyphal fragments were present as well.

The presence of pyrenomycete spores, conidia, and hyphal fragments in the guts of two cylapine species from North and South America implies a widespread, perhaps ancestral, association of these mirids with fungi. It is conceivable that spores could be ingested in the course of feeding upon mycophagous insects. Given the dense spores in the gut of one specimen, however, this seems unlikely. Neither direct observation of feeding nor breeding of either species was made. Nonetheless, consistent presence of cylapines on pyrenomycete hosts combined with our gut-content analyses provide the most compelling evidence to date that these Miridae may in fact be mycophagous.—*Quentin D. Wheeler and A. G. Wheeler, Jr., Department of Entomology, Cornell University, Ithaca, New York 14853-0999 and Bureau of Plant Industry, Pennsylvania Department of Agriculture, Harrisburg, Pennsylvania 17110-9408.*

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THE TAXONOMIC STATUS OF *CNEMODUS INFLATUS* VAN DUZEE (HEMIPTERA: LYGAEIDAE)

This paper originated from the discovery by the second author of a series of lygaeids obtained by pitfall trapping at several localities in Virginia. Included in this material was a series of 26 specimens of the genus *Cnemodus* Herrich-Schaeffer, some of which are identifiable as *Cnemodus inflatus* Van Duzee. It was interesting to note that all of the specimens of "*inflatus*" were males and all of the *mavortius* (Say) specimens were females. This gender bias was consistent even though specimens with shortened hemelytra occurred in both sexes.

The status of *inflatus* has been ambiguous for a long time and it seems desirable here to review the situation and formally synonymize it as a junior synonym of *mavortius.*

Van Duzee (1915) originally described *inflatus* from two brachypterous males from North Carolina (Balsam Mountain [W. J. Palmer] and Southern Pines [Manee]) and "four examples received from H. G. Barber." These latter specimens are not referred to by either sex or locality. Van Duzee stated that *inflatus* was distinguishable by being a "little longer and darker than *mavortius,* with the rostrum shorter and the anterior lobe of the pronotum more inflated." It should be noted that *mavortius* varies considerably in color and that Van Duzee's actual description does not indicate a longer labium but rather that it does not reach so far posteriorly (a condition we believe to be due to the larger and more inflated anterior pronotal lobe).

Blatchley (1926) expressed reservations about the validity of *inflatus* as he noted variation in both characters. He treated it as a "variety" of *mavortius.*

Froeschner (1944) studied a series from Missouri, noted that the inflated pronotum and short labium occurred only in brachypterous specimens and that even in these brachypters there was considerable variation in the degree of development of both